



Timely Topics in Zoonotic and Vector-Borne Diseases I

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Maryland Department of Health and Mental Hygiene



Infectious Disease & Environmental Health Administration

- To improve the health of Marylanders by reducing the transmission of infectious diseases, helping impacted persons live longer, healthier lives, and protecting individuals and communities from environmental health hazards
- We work in partnership with local health departments, providers, community based organizations, and public and private sector agencies to provide public health leadership in the prevention, control, monitoring, and treatment of infectious diseases and environmental health hazards



Timely Topics I and II

- Timely Topics I

- TickNet
 - Lyme and other Tickborne Diseases Prevention Study
 - Underreporting of Lyme disease
- Karen the elephant
- Animal visitation guidelines

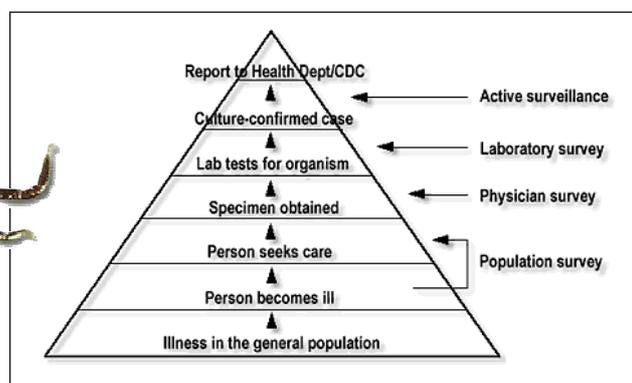
- Timely Topics II

- Trichinellosis survey
- National Park Service collaboration



TickNet

- Using Emerging Infections Program (EIP) model for tickborne diseases





TickNet: Lyme and Other Tickborne Diseases Prevention Study (LTDPS)



Lyme Disease



- Most common reported vector-borne disease in the United States
 - Caused by *Borrelia burgdorferi*
 - Transmitted by bite of infected tick, *Ixodes scapularis* (black-legged tick, aka deer tick)
- The number of U.S. and Maryland cases has steadily risen since reporting started
- Finding effective prevention measures has been challenging



Background to the LTDPS

- We know:
 - In the Northeast, Lyme disease is most commonly acquired around the home
 - A single well-timed application of pesticide applied to the perimeter of properties has been shown to reduce ticks on properties
 - Pesticides are used commonly by homeowners to reduce ticks
- We don't know:
 - Whether pesticide application actually reduces the incidence of tickborne diseases



Hypothesis

A single well-timed acaricide application to residential properties in Lyme disease-endemic areas will reduce the incidence of tick bites and tickborne disease



Objective

To compare the frequency of tick bite and tickborne disease among participants receiving a single peridomestic application of acaricide as compared to participants receiving a water placebo



Design

- Centers for Disease Control and Prevention (CDC) multi-state collaboration
 - Maryland, New York, Connecticut
- Randomized, double-blinded, placebo-controlled trial
 - Bifenthrin (pyrethroid pesticide) compared to water placebo



Study Population

- 1200-1600 heads of household adults living in free standing homes with a surrounding yard
- ~500 households each in Maryland, New York, and Connecticut
- Targeted communities in Maryland
 - Select zip codes in Howard, Baltimore, and Harford counties





STATE OF MARYLAND
DMHM
Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201
Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Joshua M. Sharfstein, M.D., Secretary

Participants Needed!

Lyme and Other Tickborne Diseases Prevention Study

The Maryland Department of Health and Mental Hygiene and the Centers for Disease Control and Prevention (CDC) are conducting a study to see if tickborne diseases can be prevented with a single, targeted commercially available pesticide application to yards.

We are seeking participants who:

- Are at least 18 years of age
- Have a freestanding home with a yard
- Have 2 or more people living in their home
- Will allow a single, no-cost, commonly used pesticide application to their yard
- Will complete short surveys about ticks and their yard

Participants will receive up to \$40 in gift cards for their time

Why should you join the study?

- To learn more about tickborne diseases and how to prevent them
- To help scientists find better ways to prevent Lyme and other tickborne diseases

Call, email or visit our website: 1-888-668-1856 www.BeTickFree.com		
Maryland Lyme Study Coordinator BeTickFree@dhhm.state.md.us	Ashley Kay CDC Lyme Study Coordinator akay@cdc.gov	

TTY/Maryland Relay Service 1-800-735-2258
 Web Site: www.dhmh.state.md.us

Be Tick Free! www.betickfree.com

Lyme and Other Tickborne Diseases Prevention Study

Study Participants Needed!

The Emerging Infections Programs of the Connecticut, Maryland, and New York Departments of Health and the

www.BeTickFree.com

DPH
Connecticut Department of Public Health

MARYLAND
Department of Health

DOH
STATE OF NEW YORK
DEPARTMENT OF HEALTH

- Have 2 or more people living in their home
- Will allow a single, no-cost pesticide application to their yard
- Will complete short surveys about ticks and their yard
- Live in one of our study towns or zip codes:
 - Connecticut—Bethel, Bridgewater, New Fairfield, Newtown, Ridgefield, Roxbury, Weston, Westport, and Wilton
 - Maryland—20759, 20777, 21015, 21029, 21036, 21042, 21047, 21050, 21057, 21064, 21111, 21131, 21738
 - New York—12514, 12524, 12531, 12533, 12538, 12540, 12569, 12570, 12571, 12572, 12578, 12580, 12582, 12583, 12590 (all in Dutchess County)

Why should I join the study?

- To learn more about tickborne diseases and how to prevent them
- To help scientists find better ways to prevent Lyme disease and other tickborne infections in your area

How can I learn more or sign-up?

If you'd like to register or learn more, please contact your state coordinator, listed below. Let them know you're interested and how they can best contact you (phone numbers, email addresses, mailing address, preferred

 **Frequently Asked Questions**

- Posted on www.BeTickFree.com
- Primarily questions regarding pesticide
 - Bifenthrin (tradename Talstar Professional)
 - Safe for pets and children
 - Precautions to be taken on day of application
 - Highly toxic to fish and aquatic invertebrates
- Logistics of spraying
 - Scheduling
 - Actions pre- and post-spraying



Timeline

- March-April
 - Direct mailing for recruitment
 - Enroll participants and administer introductory surveys
- May-June
 - Spraying of properties
 - Tick dragging on subset of properties
- June-October
 - Monthly and final surveys
- November forward
 - Analysis, write up, presentation
 - Develop recommendations



LTDP Status

- ~14,000 direct recruitment flyers mailed on March 4, 2011
- Overwhelming response
 - ~1,200 phone and email inquiries by residents interested in participating
- >500 households completed paperwork
- 445 properties sprayed
- Monthly surveys started last week





Concerns Expressed

- Health risks from pesticides
 - Are risks adequately conveyed to participants?
 - Are vulnerable populations protected?
 - Inconsistency in DHMH messages re: pesticides

- Concerns for bee populations
 - Bee populations already challenged
 - Pesticide not applied to flowering ornamentals and is not taken up systemically in plants



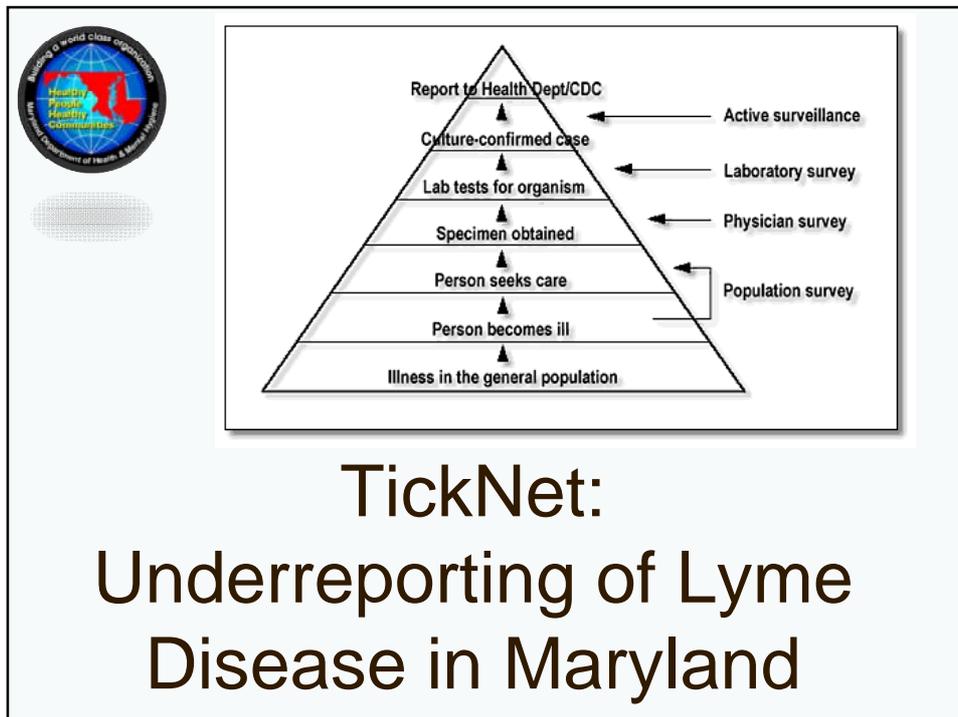
LTDPS Contacts

- Erin Jones, MS
 - Maryland LTDPS Study Coordinator
 - 410-767-6031
 - Ejones@dnhm.state.md.us

- Katherine Feldman, DVM, MPH
 - Maryland Principal Investigator
 - 410-767-6703
 - Kfeldman@dnhm.state.md.us

- www.BeTickFree.com
- 888-668-1856





TickNet: Underreporting

- How do each of the 24 local Maryland health departments approach Lyme disease surveillance?
 - We know there are complexities and variations in LD surveillance across jurisdictions, but this has not been systematically characterized
 - Local health department survey – Stay tuned!



TickNet: Underreporting

2. What is the provider and visit profile for patients seeking care for confirmed, probable, suspect and “not a case” Lyme disease?

- Using sample of 2009 NEDSS cases, ask healthcare providers for billing codes
- Ultimate goal is to use identified billing codes to query other databases



TickNet: Underreporting

3. For cases reported to public health, what proportion of probable, suspect and “not a case” cases are misclassified due to incomplete data?

- For sample of 2009 NEDSS LD cases, conduct chart reviews to learn proportion of cases that might have been confirmed had additional data been provided



Underreporting Contacts

- Heather Rutz, MPH
 - HRutz@dhmh.state.md.us
- SB Wee, MHS
 - SBWee@dhmh.state.md.us
- Katherine Feldman, DVM, MPH
 - Kfeldman@dhmh.state.md.us



The circus
is coming
to town!



PETA alert: Karen the Elephant

AN INTERNATIONAL ORGANIZATION DEDICATED TO PROTECTING THE RIGHTS OF ALL ANIMALS




April 6, 2011

Dr. Guy Hohenhaus
State Veterinarian
Maryland Department of Agriculture
Office of Marketing, Animal Industries and Consumer Services
50 Harry S Truman Pkwy.
Annapolis, MD 21401
*VIA FACSIMILE 410-841-5999 AND
ELECTRONIC MAIL (HohenhGS@mda.state.md.us)*

Re: Urgent: Tuberculosis-Positive Elephant in Baltimore

Dear Dr. Hohenhaus:

**PEOPLE FOR
THE ETHICAL
TREATMENT
OF ANIMALS**

Washington, D.C.
1536 16th St. N.W.
Washington, DC 20036
202-483-PETA

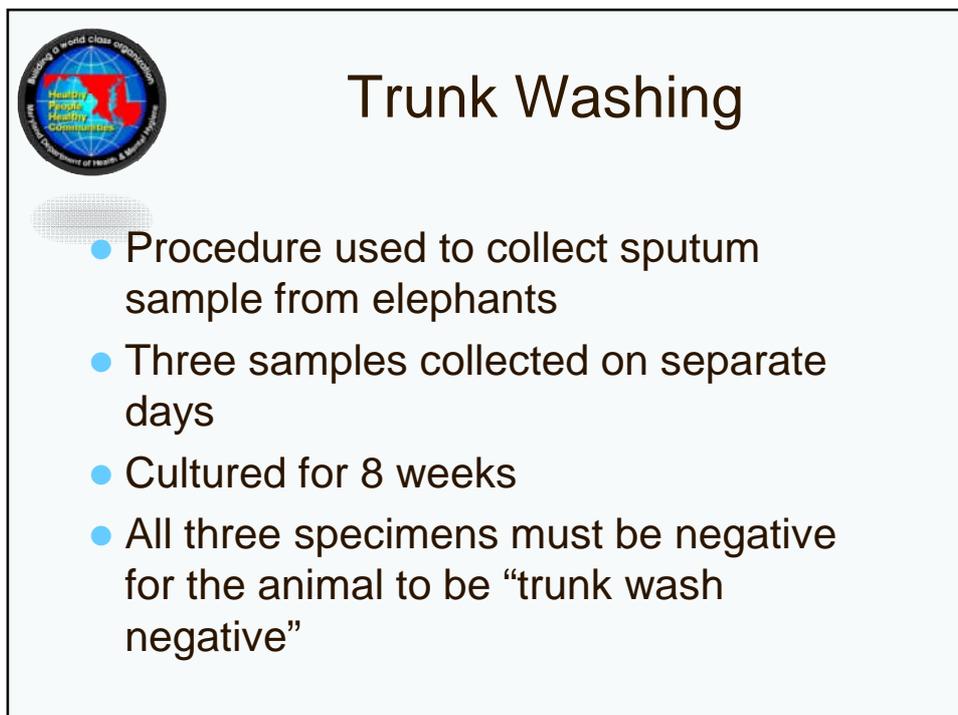
Los Angeles
2154 W. Sunset Blvd.
Los Angeles, CA 90026
323-644-PETA

Norfolk
501 Front St.
Norfolk, VA 23510
757-622-PETA



Tuberculosis in Elephants

- *M. tuberculosis* is predominant disease-causing agent in elephants
- TB diagnosis and management in humans not directly applicable
 - PPD skin tests not helpful with elephants
 - Elephants too large for other tests (CXR)
- Diagnosis based on antibody assays (STAT-PAK and MAPIA) and trunk wash cultures



The text 'Trunk Washing' is written above a bulleted list of steps. In the top left corner, there is a circular logo for the 'Healthy People, Healthy Communities' initiative, featuring a map of Florida and the text 'Building a world class organization' and 'Florida Department of Health & Mental Health'.

Trunk Washing

- Procedure used to collect sputum sample from elephants
- Three samples collected on separate days
- Cultured for 8 weeks
- All three specimens must be negative for the animal to be “trunk wash negative”



City of Baltimore asks DHMH...



Does Karen the Elephant present a public health risk?



Decision Making Approach

- Guidelines for the Control of Tuberculosis in Elephants 2008, by the National Tuberculosis Working Group for Zoo and Wildlife Species
- Literature review
- Medical record review
- Consultation with subject matter experts
 - DHMH Center for TB Control and Prevention
 - CDC tuberculosis experts
 - USDA Animal Care
 - MDA Animal Health

**GUIDELINES FOR THE CONTROL OF TUBERCULOSIS IN
ELEPHANTS 2008**

October 29, 2008

**THE NATIONAL TUBERCULOSIS WORKING GROUP FOR ZOO &
WILDLIFE SPECIES**

TABLE OF CONTENTS (topics are bookmarked)

- 1 [Introduction](#)
- 2 [Definitions](#)
- 3 [Annual Testing](#)
- 4 [Culture Collection Procedure](#)
- 5 [Elephant TB STAT-PAK® \(MANTA G. M. et al., 2008\)](#)

- All captive elephants should be tested annually by culture and Elephant TB STAT-PAK
- TB management groups

RESEARCH

Elephant-to-Human Transmission of Tuberculosis, 2009

Rendi Murphree, Jon V. Warkentin, John R. Dunn, William Schaffner, and Timothy F. Jones

Recommendations for detection and treatment of TB in elephants exist. However, no standard definition exists for latent TB in elephants, and no sound clinical criteria exist for diagnosing TB in elephants... They are thought to have active TB when *M. tuberculosis* is cultured from respiratory secretions obtained from their trunk... However, performing a trunk wash is challenging, and culture of *M. tuberculosis* from these specimens is unreliable. Knowledge about effectiveness of human antituberculous medications in elephants is limited.



Karen's Tuberculosis and Health Status

- Apparently healthy elephant
- Tuberculosis testing
 - STAT-PAK positive
 - MAPIA positive
 - Trunk wash negative
- On prophylaxis
- Per Guidelines, in Group 3
 - No treatment recommended
 - No travel restrictions



Conflicting Statements in Guidelines

- Culture negative, STAT-PAK and MAPIA positive elephants should be considered at increased risk of having TB
- Of 23 culture positive elephants evaluated to date, 100% were STAT-PAK and MAPIA positive prior to detection by culture
- Consideration should be given to minimizing or eliminating contact with the public that would result in exposure by contact or aerosol transmission and to providing PPE to staff



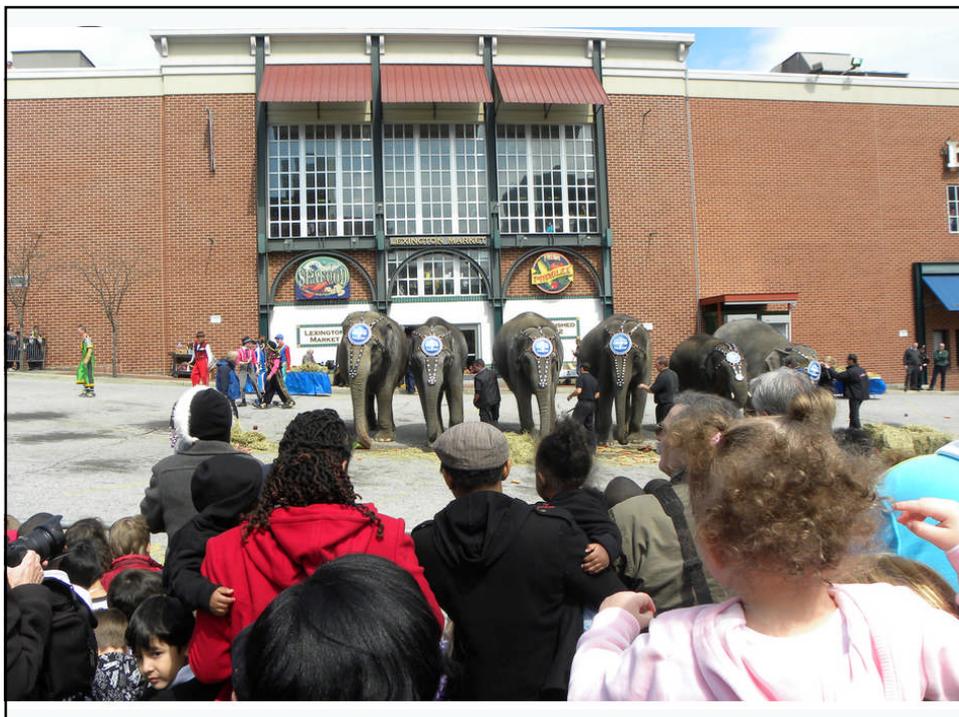
Additional Uncertainties

- Failure to grow *Mycobacteria* sp. from trunk wash may be due to
 - Animal uninfected
 - Animal not shedding at time of collection
 - Sampling error
 - Improper handling of specimens



City of Baltimore Decision – Karen the Elephant

- Given
 - Veterinary evaluation of Karen's health,
 - Laboratory results,
 - Medical treatment,
 - Established guidance, and
 - The activities in which Karen was to participate
- The City of Baltimore allowed the show to go on



Karen - Lessons Learned

- Different focus areas for involved organizations
 - Public health vs. Agriculture vs. Industry vs. Local Economy
- Very emotional issue
 - Animal rights
 - Circus lovers
- Lots of media attention
- And the show does go on...



Guidelines for Animal Visitation in Health Care Facilities

Guidelines for
Animal Visitation in
Health Care Facilities

I. PURPOSE

These Guidelines are issued to define the minimum requirements for reducing the potential health risks to nursing home or other health care facility residents posed by the visits of animals. They are intended to conform to the regulations of the Maryland Department of Health and Mental Hygiene (DHMH) as published in COMAR and to apply to any visitation by an animal in a Nursing Home, Acute or Chronic Hospital, or other facility licensed by the Department. The authority and responsibility for a facility's participation in a visitation program falls directly to the administrator of the facility. Benefits to those visited should be weighed against any risks and possible liability before the acceptance of any pet.

II. VISITING PET - DEFINITION

A Visiting Pet is any animal brought into the facility during approved visiting hours. A Visiting Pet does not remain in the facility overnight.



Guidelines for Animal Visitation in Health Care Facilities

- Jointly issued by Center for Veterinary Public Health and Office of Healthcare Quality (OHCQ), last revised June 1990
- Currently under revision
 - OHCQ
 - CZVBD
 - Brenda Roup, RN, PhD
 - Animal visitation organizations in Montgomery and Howard Counties



Revisions will Incorporate Published Guidelines

Am J Infect Control 2008;36:78-85

AJIC

major articles

Guidelines for animal-assisted interventions in health care facilities

Writing Panel of the Working Group: Sandra L. Lefebvre, DVM, PhD,^a Gail C. Golab, PhD, DVM,^b E'Lise Christensen, DVM,^c Louisa Castrodale, DVM, MPH,^d Kathy Aureden, MS, CIC,^e Anne Bialachowski, RN, MS, CIC,^f Nigel Gumley, DVM,^g Judy Robinson,^h Andrew Peregrine, DVM, PhD,^a Marilyn Benoit, RN,ⁱ Mary Lou Card, RN, CIC,^j Liz Van Horne, RN, CIC,^k and J. Scott Weese, DVM, DVSc^a

^aSchaumburg and Elgin, Illinois; ^bNew York, New York; ^cAnchorage, Alaska; ^dGuelph, Burlington, Ottawa, Hamilton, London, and Toronto, Ontario, Canada

Many hospitals and long-term care facilities in North America currently permit animals to visit with their patients; however, the development of relevant infection control and prevention policies has lagged, due in large part to the lack of scientific evidence regarding risks of patient infection associated with animal interaction. This report provides standard guidelines for animal-assisted interventions in health care facilities, taking into account the available evidence. (Am J Infect Control 2008;36:78-85.)

The popularity of animal-assisted interventions patients and residents. But while the use of AAIs and



DHMH Form 1461

MARYLAND VISITING AND RESIDENTIAL PET PROGRAM - CERTIFICATE OF EXAMINATION

Print - use ball point pen or type; Issue copy and file copy

Owner's Last Name _____ First Name _____ Daytime Telephone _____ Evening Telephone _____

No. _____ Street _____ City _____ State _____ Zip Code _____

Species	Sex	Age	Size	Animal Name:	Colors:
Dog <input type="radio"/>	Male <input type="radio"/>	3 mo.-12 mo. <input type="radio"/>	Under 20 lbs. <input type="radio"/>	_____	_____
Cat <input type="radio"/>	Female <input type="radio"/>	12 mo. or older <input type="radio"/>	20-50 lbs. <input type="radio"/>	_____	_____
Other (specify) <input type="radio"/>	Neutered? <input type="radio"/>	Yes <input type="radio"/> No <input type="radio"/>	Over 50 lbs. <input type="radio"/>	Predominant Breed: _____	_____

At the time this animal was examined on _____, it appeared to be free of contagious diseases and parasites. The result of the fecal was _____. If positive, treated with _____.

CANINE		FELINE		AVIAN
Last Vaccination Date	Expires	Last Vaccination Date	Expires	Antibiotic Treatment Concluded:
Adenovirus _____	_____	Calicivirus _____	_____	_____ 19__
<input checked="" type="checkbox"/> Distemper _____	_____	Chlamydia _____	_____	
<input checked="" type="checkbox"/> Hepatitis _____	_____	psittaci _____	_____	
<input checked="" type="checkbox"/> Leptospirosis _____	_____	Panleukopenia _____	_____	
<input checked="" type="checkbox"/> Parainfluenza _____	_____	Pneumonitis _____	_____	
<input checked="" type="checkbox"/> Parvovirus _____	_____	Rhinotracheitis _____	_____	
<input checked="" type="checkbox"/> Rabies _____	_____	Rabies _____	_____	

Questions ?



**Maryland
Infectious Disease and
Environmental Health
Administration**

ideha.dhmh.maryland.gov